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EUROPEAN PATENT APPLICATION

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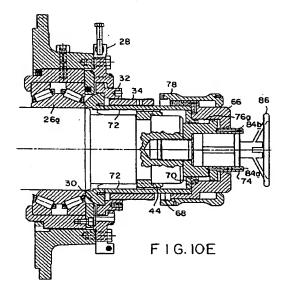
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(54) Hydraulically actuated tool for mounting and dismounting rolling mill roll neck bearings

(57)A tool is disclosed for axially urging a bearing assembly (10) into and out of a seated position on the neck (18) of a roll in a rolling mill. The tool includes a piston (74) surrounded by a cylinder (66). The piston is removably fixed to the roll neck and is configured to internally subdivide the cylinder into first and second chambers (76a,76b). Fluid conduits (84a,84b) are arranged to alternatively pressurize the first and second chambers to alternatively shift the cylinder with respect to the thus fixed piston in opposite first and second directions. Movement of the cylinder in the first direction urges the bearing assembly into its seated position, and movement of the cylinder in the opposite second direction dislodges the bearing assembly from its seated position.





EUROPEAN SEARCH REPORT

EP 00 30 5992

	DOCUMENTS CONSIDER			CLASSIFICATION OF THE	
Category	Citation of document with indic of relevant passag	cation, where appropriate, es	Relevant to claim	APPLICATION (Int.CI.7)	
A	US 4 352 229 A (MOORE 5 October 1982 (1982- * the whole document	-10-05)	1	B21B31/08 B21B31/07	
A	US 4 286 830 A (SALTI 1 September 1981 (198 * the whole document	31-09-01)	1		
A	US 4 733 458 A (IRLE 29 March 1988 (1988- * the whole document	03-29)	1,2		
A	US 5 800 088 A (LÜCK 1 September 1998 (19 * column 3 - column	98-09-01)	1,8		
A	US 4 813 113 A (WYKE 21 March 1989 (1989-	S PHILIP ET AL) 03-21) 			
				TECHNICAL FIELDS SEARCHED (Int.Cl.7)	
				B21B F16C	
	!				
ł	The present search report has been drawn up for all claims			Examiner	
,	Place of search	Date of completion of the se		osenbaum, H	
<u> </u>	THE HAGUE CATEGORY OF CITED DOCUMENTS	29 March 200	principle underlying	the invention	
žΙ v:i	particularly relevant if taken alone particularly relevant if combined with anot document of the same category	E : earlier pa after the i her D : documer L : documer	E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons		
A:	technological background non-written disclosure intermediate document	of the same patent f	same patent family, corresponding		

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EP 00 30 5992

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29-03-2001

222895 A 884569 A 8005220 A 1129687 A 3030256 A 493973 D 8103555 A 2465529 A 2060820 A,B 1172254 B 1185558 C	30-06-1 17-11-1 28-04-1 17-08-1 09-04-1 16-03-1 01-06-1 27-03-1
884569 A 8005220 A 1129687 A 3030256 A 493973 D 8103555 A 2465529 A 2060820 A,B 1172254 B	17-11-1 28-04-1 17-08-1 09-04-1 16-03-1 01-06-1 27-03-1
8005220 A 1129687 A 3030256 A 493973 D 8103555 A 2465529 A 2060820 A,B 1172254 B	28-04-1 17-08-1 09-04-1 16-03-1 01-06-1 27-03-1
1129687 A 3030256 A 493973 D 8103555 A 2465529 A 2060820 A,B 1172254 B	17-08-1 09-04-1 16-03-1 01-06-1 27-03-1
3030256 A 493973 D 8103555 A 2465529 A 2060820 A,B 1172254 B	09-04-1 16-03-1 01-06-1 27-03-1
493973 D 8103555 A 2465529 A 2060820 A,B 1172254 B	16-03-1 01-06-1 27-03-1
8103555 A 2465529 A 2060820 A,B 1172254 B	01-06-1 27-03-1
2465529 A 2060820 A,B 1172254 B	27-03-1
2060820 A,B 1172254 B	
2060820 A,B 1172254 B	
1172254 B	07-05-1
1185558 C	18-06-1
	20-01-1
56052621 A	11-05-1
58020682 B	25-04-1
8500516 Y	03-04-1
150831 A	27-07-1
3605615 A	27-08-1
46942 T	15-10-1
584269 B	18-05-1
6787187 A	27-08-1
45859 A	15-08-1
8701141 A	14-08-1
254629 A	02-03-1
3760684 D	09-11-1
0233596 A	26-08-1
3000268 T	15-03-1
43379 A,B	28-10-3
2008647 C	11-01-1
7045886 B	17-05-1
62200020 A	03-09-1
9102334 B	20-04-1
102307 A	14-10-1
1574183 A	23-06-1
24587 A	30-04-1
8701166 A	28-10-1
19503682 C	02-05-1
8806641 A	29-08-1
1321308 A	17-08-1
3876080 A	24-12-1
	06-05-1
3876080 T	21-06-1
0321139 A	18-02-1
	1321308 A 3876080 A 3876080 T

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 00 30 5992

This annex lists the patent family members relating to the patent documents cited in the above—mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

29-03-2001

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4813113 A	<u> </u>	JP 2006005 A JP 2058002 B US 4881310 A	10-01-1990 06-12-1990 21-11-1989

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82